REMARKS

Claims 1-20 are in the application. Claims 1, 2, 5, and 15 are amended herein. Claims 1 and 3-16 stand rejected over the prior art. Claims 17-20 are new.

On page 2 of the Office Action, the Examiner requests that Claims 8 and 16 be amended so that both instances of "a BPSK symbol" refer to the same symbol. However, that amendment is incorrect, and inconsistent with the specification, which teaches reducing the incidence of the occurrence of the same BPSK symbol over successive symbol periods on the same signal line, so that enhanced envelope peaking, which occurs when the same BPSK symbol is transmitted on the same signal line over successive symbol periods, can be reduced. (*See* page 11, top). Therefore, Claims 8 and 16 have not been amended as requested, because, through application of the invention, the BPSK symbol transmitted over successive symbol periods on the same signal line can frequently vary.

Claims 1 and 15 have been amended to cure lack of antecedent basis in the reference to "the mapper." This reference has been changed in Claim 1 to "the first logic" and, in Claim 15, to "the first means." Claim 1 has also been amended to correct a typographical error to change "constellation" to "constellations". Claim 5 has also been amended to improve readability. Claims 5 and 7 have been amended to correct the conjugation of the verb for the plural noun "data." None of these amendments change claim scope.

On pages 2-3 of the Office Action, the Examiner rejects claims 1, 3-6, 8-13 and 15-16 for anticipation based on Dent, and claims 7 and 14 for obviousness based on Dent. However, both these rejections are incorrect because Dent does not teach or suggest the claimed subject matter.

In particular, the claims are directed to applying orthogonal ***BPSK*** symbol constellations to successive data bits, and, as the specification explains, the focus is deliberately on ***BPSK*** symbols because, with BPSK symbols, the envelope peaking introduced by the pulse shaping filter substantially exceeds that of other modulation schemes, for example, QPSK and 8-PSK symbols. (*See* page 2, middle).

However, nothing in Dent teaches or suggests applying orthogonal ***BPSK*** symbol constellations to successive bits. The Examiner points to Figs. 2-4 and 8-14 of Dent, but those figures are all concerned with higher order symbol constellations, such as QPSK or 16-QAM.

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(*See, e.g.,* Fig. 2 of Dent, referring to QPSK symbols and Fig. 4, referring to QPSK and 16-QAM symbols).

The Examiner also points to Col. 3:32 – Col. 7:67 and Col. 23:8-29 of Dent, but nothing in those passages teaches or suggests applying orthogonal **BPSK** symbol constellations to successive bits either. For example, the passage beginning at Col. 3:32 is merely concerned with scrambling QPSK symbols. And the passage beginning at Col. 5:9 merely refers to a variable symbol generator for mapping respective bit streams to respective symbol streams according to respective symbol constellations of a plurality of symbol constellations, but nothing indicates that the symbol constellations are orthogonal BPSK symbol constellations, or that they are applied to successive data bits, as required by the claims.

Similarly, the passage at Col. 23:8-29 is only concerned with higher-order symbol constellations, such as 16-QAM and 16-PSK, which map an even number of bits into a symbol. The passage specifically teaches away from using a symbol constellation, such as BPSK, that maps an odd number of bits to a symbol:

> For the embodiments of FIG. 12, in order to maintain orthogonality between transmissions of different users, it may be desirable to constrain the possible symbol constellations that may be applied by the variable symbol generator 1230 to mappings that map complementary bit patters to diametrically opposite constellation points in the symbol plane (i.e., points that represent 180 degree rotations of one another). Such a restriction may typically be met by 16-PSK, 16-QAM, and other constellations having an order of two to an even power (i.e., constellations that map an even number of bits to a constellation point), *but not by 8-PSK or other constellations that map an odd number of bits to a constellation point.*

(*See* Dent, Col. 23:8-21, emphasis added).

Therefore, this passage actually teaches away from the subject invention.

Other passages in Dent, not cited by the Examiner, also teach away from the subject invention. For example, the following passage teaches away from varying a symbol constellation, such as BPSK[1], that has an order of two to an odd power, *i.e.*, maps an odd number of bits into a symbol:

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[1] A BPSK symbol constellation has an order of two to the odd power, *i.e.*, 2^1, and maps an odd number of bits, *i.e.*, 1, to a symbol.

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:The assigned code 312 could also be combined with the binary output of the turbo-encoder 310. However, under such a configuration, orthogonal transmissions would only occur if the variable symbol mapper 320 maps complementary bit patterns to diametrically opposite constellation points in the complex plane, a restriction that is usually met when using a 16-psk or 16-QAM and, in general, a constellation of order two to an even power, ***but which is usually not met when using 8-psk or, in general, a constellation which is an order two to an odd power.***

(*See* Dent, Col. 9:51-60, emphasis added).

Therefore, the Examiner is respectfully requested to reconsider and withdraw the rejections based on Dent.

Finally, at page 4 of the Office Action, the Examiner indicates that Claim 2 would be allowable if rewritten in independent form. In response, Claim 2 has been so rewritten, after incorporating the change made to Claim 1 to cure the lack of antecedent basis for the reference to "the mapper." This amendment, Applicant submits, does not change the scope of Claim 2.

New Claims 17-20 are method counterparts to existing apparatus claims, particularly to allowed apparatus Claim 2, and are allowable for the same reasons that Claim 2 is.

For all the foregoing reasons, the Examiner is earnestly solicited to allow all claims and pass this application to issuance.

To expedite allowance of this case, the Examiner is earnestly invited to call the undersigned at (949) 759-5269.

Respectfully submitted,

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